

IN THE
UNITED STATES PATENT AND TRADEMARK OFFICE

Inventor(s): Ludmila Cherkasova et al.

Confirmation No.:

Application No.: 10/660,978

Examiner:

Filing Date: Sept. 12, 2003

Group Art Unit:

Title: SYSTEM AND METHOD FOR EVALUATING A CAPACITY OF A STREAMING MEDIA
SERVER FOR SUPPORTING A WORKLOAD

Commissioner for Patents
PO Box 1450
Alexandria, VA 22313-1450

INFORMATION DISCLOSURE STATEMENT

Sir:

This Information Disclosure Statement is submitted:

- ☒ under 37 CFR 1.97(b), or
(Within three months of filing national application; or date of entry of national application; or before
mailing date of first office action on the merits; whichever occurs last)
- ☐ under 37 CFR 1.97 (c) together with either a:
☐ Statement under 37 CFR 1.97(e), or
☐ a \$180.00 fee under 37 CFR 1.17(p), or
(After the CFR 1.97 (b) time period, but before final action or notice of allowance, whichever occurs first)
- ☐ under 37 CFR 1.97 (d) together with a:
☐ Statement under 37 CFR 1.97(e)(1) or (2), and
☐ a \$180.00 fee set forth in 37 CFR 1.17(p).
(Filed after final action, a notice of allowance, on or before payment of the issue fee)

Please charge to Deposit Account **08-2025** the sum of \$0.00 . At any time during the
pendency of this application, please charge any fees required or credit any overpayment to Deposit
Account **08-2025** pursuant to 37 CFR 1.25.

☒ Applicant(s) submit herewith Form PTO 1449 - Information Disclosure Citation together with
copies, of patents, publications or other information of which applicant(s) are aware, which applicant(s)
believe(s) may be material to the examination of this application and for which there may be a duty to
disclose in accordance with 37 CFR 1.56.

☐ A concise explanation of the relevance of foreign language patents, foreign language publications
and other foreign language information listed on PTO Form 1449, as presently understood by the
individuals(s) designated in 37 CFR 1.56 (c) most knowledgeable about the content is given on the
attached sheet, or where a foreign language patent is cited in a search report or other action by a
foreign patent office in a counterpart foreign application, an English language version of the search
report or action which indicates the degree of relevance found by the foreign office is listed on form PTO
1449 and is enclosed herewith.

It is requested that the information disclosed herein be made of record in this application.

☒ I hereby certify that this correspondence is being
deposited with the United States Postal Service
as first class mail in an envelope addressed to:
Commissioner for Patents, Alexandria, VA
22313-1450. Date of Deposit: Sept. 30, 2003
OR

☐ I hereby certify that this paper is being
transmitted to the Patent and Trademark Office
facsimile number _____ on _____
Number of pages: _____

Typed Name: John Pallivathukal

Signature: [Signature]

Respectfully submitted,

Ludmila Cherkasova et al.

By

[Signature]
Jody C. Bishop

Attorney/Agent for Applicant(s)
Reg. No. **44,034**

Date: **Sept. 30, 2003**

Telephone No.: **(214) 855-8007**



PATENT APPLICATION

Sheet 1 of 4

PTO-1449

LIST OF PATENTS AND PUBLICATIONS FOR
APPLICANT'S INFORMATION DISCLOSURE
STATEMENT

(Use several sheets if necessary)

ATTY. DOCKET NO.

200313317-1

APPLICATION NO.

10/660,978

CONFIRMATION NO.

APPLICANT

Ludmila Cherkasova et al.

FILING DATE

Sept. 12, 2003

GROUP

REFERENCE DESIGNATION

U.S. PATENT DOCUMENTS

| EXAMINER INITIAL | | DOCUMENT NUMBER | PUBLICATION DATE | NAME | Pages, Columns, Lines Where Relevant Passages or Figures Appear |
|---------------------|----|--------------------|---------------------|-------------------|--|
| | 1A | 10/306,279 | | Cherkasova et al. | |
| | 1B | 5,603,029 | 02/11/1997 | Aman et al. | |
| | 1C | 5,732,239 | 03/24/1998 | Togabi et al. | |
| | 1D | 5,734,119 | 03/31/1998 | France et al. | |
| | 1E | 5,815,662 | 09/29/1998 | Ong | |
| | 1F | 5,953,707 | 09/14/1999 | Huang et al. | |
| | 1G | 6,067,107 | 05/23/2000 | Travaille et al. | |
| | 1H | 6,101,547 | 08/08/2000 | Mukherjee et al. | |
| | 1I | 6,178,480 | 01/23/2001 | Togabi et al. | |
| | 1J | 6,263,361 | 07/17/2001 | Hoyer et al. | |
| | 1K | 6,279,039 | 08/21/2001 | Bhat et al. | |

FOREIGN PATENT DOCUMENTS

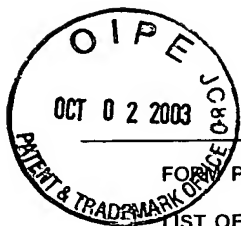
| | | DOCUMENT NUMBER | PUBLICATION DATE | NAME OF PATENTEE OR APPLICANT | Pages/Columns/Lines Where Relevant Passages/Figures Appear | Check if Translation attached |
|--|----|--------------------|---------------------|----------------------------------|---|-------------------------------------|
| | 1L | | | | | |
| | 1M | | | | | |
| | 1N | | | | | |
| | 1O | | | | | |
| | 1P | | | | | |

OTHER REFERENCES (including Author, Title, Date, Pertinent Pages, etc.)

| | |
|----|--|
| 1Q | CHERKOSOVA, L. et al., "Building a Performance Model of Streaming Media Applications in Utility Data Center Environment," Hewlett-Packard Laboratories, Internet Systems and Storage Lab, 12 pages |
| 1R | CHASE, J. et al., "Managing Energy and Server Resources in Hosting Centers," Dept. of Computer Science, Duke University, 14 pages |
| 1S | EAGER, D. et al., "Optimal and Efficient Merging Schedules for Video-on-Demand Servers," Proc. ACM Multimedia 1999, 4 pages |

EXAMINER

DATE CONSIDERED



PATENT APPLICATION

Sheet 2 of 4

FORM PTO-1449

LIST OF PATENTS AND PUBLICATIONS FOR
APPLICANT'S INFORMATION DISCLOSURE
STATEMENT

(Use several sheets if necessary)

ATTY. DOCKET NO.

200313317-1

APPLICATION NO.

10/660,978

CONFIRMATION NO.

APPLICANT

Ludmila Cherkasova et al.

FILING DATE

Sept. 12, 2003

GROUP

REFERENCE DESIGNATION

U.S. PATENT DOCUMENTS

| EXAMINER INITIAL | | DOCUMENT NUMBER | PUBLICATION DATE | NAME | Pages, Columns, Lines Where Relevant Passages or Figures Appear |
|---------------------|----|--------------------|---------------------|-----------------|--|
| | 2A | 6,292,834 | 09/18/2001 | Ravi et al. | |
| | 2B | 6,356,947 | 03/12/2002 | Lutterschmidt | |
| | 2C | 6,434,621 | 08/13/2002 | Pezzillo et al. | |
| | 2D | 6,438,592 | 08/20/2002 | Killian | |
| | 2E | 6,571,288 | 05/27/2003 | Sarukkai | |
| | 2F | 6,606,658 | 08/12/2003 | Uematsu | |
| | 2G | 2002/0083124 | 06/27/2002 | Knox et al. | |
| | 2H | 2002/0091722 | 07/11/2002 | Gupta et al. | |
| | 2I | 2002/0129048 | 09/12/2002 | Qiu et al. | |
| | 2J | 2002/0150102 | 10/17/2002 | Janko et al. | |
| | 2K | 2002/0156552 | 10/24/2002 | Whiting | |

FOREIGN PATENT DOCUMENTS

| | | DOCUMENT NUMBER | PUBLICATION DATE | NAME OF PATENTEE OR APPLICANT | Pages/Columns/Lines Where Relevant Passages/Figures Appear | Check if Translation attached |
|--|----|--------------------|---------------------|----------------------------------|---|-------------------------------------|
| | 2L | | | | | |
| | 2M | | | | | |
| | 2N | | | | | |
| | 2O | | | | | |
| | 2P | | | | | |

OTHER REFERENCES (including Author, Title, Date, Pertinent Pages, etc.)

| | |
|----|---|
| 2Q | NAHRSTEDT, K. et al., "A Probe-based Algorithm for QoS Specification and Adaptation," Univ. of Illinois at Urbana Champaign, pages 1 - 12 |
| 2R | NAHRSTEDT, K. et al., "QoS-Aware Resource Management for Distributed Multimedia Applications," Univ. of Illinois at Urbana Champaign, Dept. of Computer Science, pages 1-37 |
| 2S | RANJAN, S. et al., "QoS-Driven Server Migration for Internet Data Centers," Proc. of IWQoS 2002, 10 pages |

EXAMINER

DATE CONSIDERED



PATENT APPLICATION

Sheet 3 of 4

FORM PTO-1449

LIST OF PATENTS AND PUBLICATIONS FOR
APPLICANT'S INFORMATION DISCLOSURE
STATEMENT

(Use several sheets if necessary)

ATTY. DOCKET NO.

200313317-1

APPLICATION NO.

10/660,978

CONFIRMATION NO.

APPLICANT

Ludmila Cherkasova et al.

FILING DATE

Sept. 12, 2003

GROUP

REFERENCE DESIGNATION

U.S. PATENT DOCUMENTS

| EXAMINER INITIAL | | DOCUMENT NUMBER | PUBLICATION DATE | NAME | Pages, Columns, Lines Where Relevant Passages or Figures Appear |
|---------------------|----|--------------------|---------------------|-------------------|--|
| | 3A | 2003/0097443 | 05/22/2003 | Gillett et al. | |
| | 3B | 2003/0115244 | 06/19/2003 | Molloy et al. | |
| | 3C | 10/601,992 | | Cherkasova et al. | |
| | 3D | 10/601,956 | | Cherkasova et al. | |
| | 3E | | | | |
| | 3F | | | | |
| | 3G | | | | |
| | 3H | | | | |
| | 3I | | | | |
| | 3J | | | | |
| | 3K | | | | |

FOREIGN PATENT DOCUMENTS

| | | DOCUMENT NUMBER | PUBLICATION DATE | NAME OF PATENTEE OR APPLICANT | Pages/Columns/Lines Where Relevant Passages/Figures Appear | Check if Translation attached |
|--|----|--------------------|---------------------|----------------------------------|---|-------------------------------------|
| | 3L | | | | | |
| | 3M | | | | | |
| | 3N | | | | | |
| | 3O | | | | | |
| | 3P | | | | | |

OTHER REFERENCES (including Author, Title, Date, Pertinent Pages, etc.)

| | | |
|--|----|---|
| | 3Q | SHENOY, P. et al., "Middleware versus Native OS Support: Architectural Considerations for Supporting Multimedia Applications," Univ. of Massachusetts, Dept. of Computer Science, 10 pages |
| | 3R | ACHARYA, S. et al., "Characterizing User Access To Videos On The World Wide Web," Part of the IS&T/SPIE Conference on Multimedia computing and Networking 2000, SPIE Vol. 3969, 2000, pages 130-141 |
| | 3S | ALMEIDA, J. et al., "Analysis of Educational Media Server Workloads," Proc. 11th Int'l. Workshop, 2001, 10 pages |

EXAMINER

DATE CONSIDERED



PATENT APPLICATION

Sheet 4 of 4

FORM PTO-1449

ATTY. DOCKET NO.

200313317-1

APPLICATION NO.

10/660,978

CONFIRMATION NO.

LIST OF PATENTS AND PUBLICATIONS FOR
APPLICANT'S INFORMATION DISCLOSURE
STATEMENT

APPLICANT

Ludmila Cherkasova et al.

FILING DATE

Sept. 12, 2003

GROUP

(Use several sheets if necessary)

REFERENCE DESIGNATION

U.S. PATENT DOCUMENTS

| EXAMINER INITIAL | | DOCUMENT NUMBER | PUBLICATION DATE | NAME | Pages, Columns, Lines Where Relevant Passages or Figures Appear |
|---------------------|----|--------------------|---------------------|------|--|
| | 4A | | | | |
| | 4B | | | | |
| | 4C | | | | |
| | 4D | | | | |
| | 4E | | | | |
| | 4F | | | | |
| | 4G | | | | |
| | 4H | | | | |
| | 4I | | | | |
| | 4J | | | | |
| | 4K | | | | |

FOREIGN PATENT DOCUMENTS

| | | DOCUMENT NUMBER | PUBLICATION DATE | NAME OF PATENTEE OR APPLICANT | Pages/Columns/Lines Where Relevant Passages/Figures Appear | Check if Translation attached |
|--|----|--------------------|---------------------|----------------------------------|---|-------------------------------------|
| | 4L | | | | | |
| | 4M | | | | | |
| | 4N | | | | | |
| | 4O | | | | | |
| | 4P | | | | | |

OTHER REFERENCES (including Author, Title, Date, Pertinent Pages, etc.)

| | |
|----|---|
| 4Q | DAN, A. et al., "Buffering and Caching in Large-Scale Video Servers," IEEE 1995, pgs 217-224 |
| 4R | KIM, I. et al., "VBR Video Data Scheduling using Window-Based Prefetching," IEEE 1999, pgs 159-164 |
| 4S | CHERKASOVA, L. et al., "Characterizing Locality, Evolution, and Life span of Accesses in Enterprise Media Server Workloads," NOSSDAV '02, May 12-14, 2002, 10 pages |

EXAMINER

DATE CONSIDERED